



CIVIL AIM CONSULTANTS & ENGINEERS

(Building Geo-Tech & Highway Materials Testing Laboratory)

An ISO 9001-2015 Certified Company
NABL Accredited As Per ISO/IEC 17025:2017 Laboratory



AE-12

Job No.: CACE/BBMP/CK/W.No.12/2022-23

Date: 25.06.2022

TEST REPORT ON STABILITY OF MIX

Client	:	Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
Agency	:	Sri. Chikkaboregowda Karigowda (CKG Constructions Private Limited), Contractor, Mysore.
Name of the Work	:	De-setting and Re-setting of Drain and Re-Asphalting of roads to Chikkasandra area in Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Semi Dense Bituminous Concrete
Date of Testing	:	25.06.2022

The results of the tests conducted on the Semi Dense bituminous concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.22	10.48	9 Kn (min)
2	Marshal flow, mm	2.45	3.97	2 - 4
3	Percent air voids in Mineral Aggregate	13.49	14.36	13 - 15
4	Voids in Compacted Mix	3.79	4.78	3 - 6
5	Percent Voids filled with Bitumen	69.21	70.19	65 - 75
6	Density, g/cc	2.23	2.25	--

Note:

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AE-12

Job No.: CACE/BBMP/CK/W.No.12/2022-23

Date : 25.06.2022

BITUMEN CONTENT AND GRADATION DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

AASHTO T 164 & AASHTO T 30

CLIENT	Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
AGENCY	Sri. Chikkaboregowda Karigowda (CKG Constructions Private Limited), Contractor, Mysore.
NAME OF THE WORK	De-setting and Re-setting of Drain and Re-Asphalting of roads to Chikkasandra area in Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.
DATE OF TESTING	25.06.2022

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	475	474.5
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	25	25.50
7. Bitumen content in %	5.00	5.10
8. Average	5.05	

GRADATION AFTER EXTRACTION

SIEVE SIZE	Trail 1				JOB MIX
mm	Weight Retained, gm	% Retained	% Cumulative Retained	% Passing	Gradation
19	0	0	0	100	100
13.2	14.2	2.99	2.99	97.01	90-100
9.5	31.2	6.57	9.56	90.44	70-90
4.75	228.7	48.15	57.71	42.29	35-51
2.36	44.1	9.28	66.99	33.01	24-39
1.18	31.9	6.72	73.71	26.29	15-30
0.3	40.7	8.57	82.27	17.73	9-19
0.075	48.1	10.13	92.40	7.60	3-8

SIEVE SIZE	Trail 2				JOB MIX
mm	Weight Retained, gm	% Retained	% Cumulative Retained	% Passing	Gradation
19	0	0	0	100	100
13.2	14.7	3.10	3.10	96.90	90-100
9.5	25.9	5.18	5.18	94.82	70-90
4.75	241.9	48.38	53.56	46.44	35-51
2.36	57.8	11.56	65.12	34.88	24-39
1.18	36.9	7.38	72.50	27.50	15-30
0.3	72.8	14.56	87.06	12.94	9-19
0.075	40.1	8.02	95.08	4.92	3-8

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No. 01, Sarvika Niya, Opp. Vidya Poorna Pragna Bhavan, Ramaiah Layout, Nagasandra, Bangalore - 560 073.

Ph: 9501618630, GSTIN: 29CNWDD0510K1ZB, Email: civilaimconsultants@gmail.com

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Job No.: CACE/BBMP/CK/W.No.12/2022-23

Date : 16.06.2022

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS MACADAM MIX AASHTO T 164 & AASHTO T 30

CLIENT	Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
AGENCY	Sri. Chikkaboregowda Karigowda (CKG Constructions Private Limited), Contractor, Mysore.
NAME OF THE WORK	De-setting and Re-setting of Drain and Re-Asphalting of roads to Chikkasandra area in Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.
SAMPLE I/D	Sample Supplied by Agency
DATE OF TESTING	16.06.2022

BITUMEN CONTENT DETERMINATION

Description	Test 1	Test 2	Requirements as per MORTH 5th edition Table 500.7
1. Weight of Mixture before Test, g	500	500	Grade II, Min 3.4
2. Weight of Mixture after Test, g	482.5	483	
3. Weight of Asphalt and Mineral matter Extracted, g	-	-	
4. Weight of Mineral Matter, g.	-	-	
5. Weight of Ash, g			
6. Weight of Bitumen Extracted, g. (corrected)	17.5	17.00	
7. Bitumen content in %	3.50	3.40	
8. Average	3.45		

GRADATION AFTER EXTRACTION

SIEVE SIZE	Test 1				JOB MIX
mm	Weight Retained, gm	% Retained	% Cumulative Retained	% Passing	Gradation
26.5	0	0	0	100	100
19	38.7	8.02	8.02	91.98	90-100
13.2	169.1	35.05	43.07	56.93	56-88
4.75	149.1	30.90	73.97	26.03	16-36
2.36	60.2	12.48	86.45	13.55	4-19
0.3	30.2	6.26	92.70	7.30	2-10
0.075	7.9	1.64	94.34	5.66	0-8

SIEVE SIZE	Test 2				JOB MIX
mm	Weight Retained, gm	% Retained	% Cumulative Retained	% Passing	Gradation
26.5	0	0	0	100	100
19	31.9	6.60	6.60	93.40	90-100
13.2	155.2	32.13	38.74	61.26	56-88
4.75	181.2	37.52	76.25	23.75	16-36
2.36	76.1	15.76	92.01	7.99	4-19
0.3	21.9	4.53	96.54	3.46	2-10
0.075	6.5	1.35	97.89	2.11	0-8

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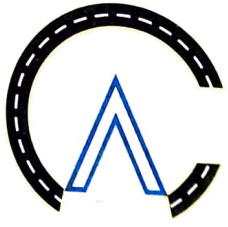
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Ramaiah Layout, Nagasandra, Bangalore - 560 073.

Ph: 9591618639, GSTIN: 29CNWPD9510K1ZB, Email: civilaimconsultants@gmail.com

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AE-12
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QC ABSTRACT

Name of Work: De-setting and Re-setting of Drain and Re-Asphalting of roads to Chikkasandra area in Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.

SI. No.	Item	Quantity As Per BOQ	Required No's of testes as per Frequency	Actual No's of testes done	Testes Results	Frequency
1	WMM	1412.28 Cum	-	-		
		Gradation	8	8		
		AIV	2	2		
		Shape Test	3	3		
		Atterberg Limits	8	8		
2	BM	353.07 Cum	-	-		
		Quality of Binder	1	1		
		AIV	1	1		
		Shape Test	1	1		
		Gradation	1	1		
		Specific Gravity	1	1		
		Bitumen content	8	8		
3	SDBC	176.54 Cum	-	-		
		Quality of Binder	1	1		
		AIV	1	1		
		Shape Test	1	1		
		Gradation	1	1		
		Specific Gravity	1	1		
		Stability of Mix	4	4		
		Bitumen content	4	4		

K. S. Srinivas

ಸಹಾಯಕ ಕಾರ್ಯದರ್ಶಿ ಅಭಿಯಂತರ
ಶಿಬಿರಕ್ಕೆ ಉಪವಿಭಾಗ
ಜಿಲ್ಲಾವಂಶಿ, ಬೆಂಗಳೂರು

For CIVIL AIM CONSULTANTS & ENGINEERS

Authorized Signatory

Job No.: CACE/BBMP/CK/W.No.12/2022-23

Date : 25.05.2022

GRADATION FOR WMM

Client : Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
Agency : Sri. Chikkaboregowda Karigowda (CKG Constructions Private Limited), Contractor, Mysore.
Name of Work : De-setting and Re-setting of Drain and Re-Asphalting of roads to Chikkasandra area in Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.
IS Code: : IS 2386 (Part 1):1963(RA 2011)
Date of Testing : 25.05.2022
Material Type : Wet Mix Macadam

Oven Dry.Wt, grar 10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	189	189	1.9	98.1	95-100
22.4	2530	2719	27.2	72.8	60-80
11.2	2168	4887	48.9	51.1	40-60
4.75	1855	6742	67.4	32.6	25-40
2.36	1165	7907	79.1	20.9	15-30
0.600	582	8489	84.9	15.1	8-22
0.075	1210	9699	97.0	3.0	0-5

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K. Sreekanth

For CIVIL AIM CONSULTANTS & ENGINEERS
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ಜವಾನಿ, ಬೆಂಗಳೂರು
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Date of Testing : 25.05.2022
Material Type : Wet Mix Macadam

Oven Dry.Wt, gram 10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	176	176	1.8	98.2	95-100
22.4	2536	2712	27.1	72.9	60-80
11.2	2185	4897	49.0	51.0	40-60
4.75	1845	6742	67.4	32.6	25-40
2.36	1120	7862	78.6	21.4	15-30
0.600	536	8398	84.0	16.0	8-22
0.075	1265	9663	96.6	3.4	0-5

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Greenish

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ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ
ಜಿಬಿಎಂಸಿ, ಬೆಂಗಳೂರು

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IS Code: : IS 2386 (Part 1):1963(RA 2011)
Date of Testing : 25.05.2022
Material Type : Wet Mix Macadam

Oven Dry.Wt, gram

10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	178	178	1.8	98.2	95-100
22.4	2562	2740	27.4	72.6	60-80
11.2	2145	4885	48.9	51.2	40-60
4.75	1869	6754	67.5	32.5	25-40
2.36	1152	7906	79.1	20.9	15-30
0.600	598	8504	85.0	15.0	8-22
0.075	1236	9740	97.4	2.6	0-5

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ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ
ಬಿಜಿಎಂ.ಕೆ. ಬೆಂಗಳೂರು

For CIVIL AIM CONSULTANTS & ENGINEERS

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IS Code: : IS 2386 (Part 1):1963(RA 2011)
Date of Testing : 25.05.2022
Material Type : Wet Mix Macadam

Oven Dry.Wt, gar 10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	188	188	1.9	98.1	95-100
22.4	2545	2733	27.3	72.7	60-80
11.2	2136	4869	48.7	51.3	40-60
4.75	1896	6765	67.7	32.4	25-40
2.36	1165	7930	79.3	20.7	15-30
0.600	525	8455	84.6	15.5	8-22
0.075	1246	9701	97.0	3.0	0-5

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IS 2386 (Part 1):1963(RA 2011)

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ಶಿಬ್ಬಹಳ್ಳಿ ಉಪವಿಭಾಗ
ಬಿಜಿಎಂಸಿ, ಬೆಂಗಳೂರು

For CIVIL AIM CONSULTANTS & ENGINEERS

Authorized Signatory

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 IS Code: : IS 2386 (Part 1):1963(RA 2011)
 Date of Testing : 27.05.2022
 Material Type : Wet Mix Macadam

Oven Dry.Wt, gram 10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	175	175	1.8	98.3	95-100
22.4	2562	2737	27.4	72.6	60-80
11.2	2145	4882	48.8	51.2	40-60
4.75	1898	6780	67.8	32.2	25-40
2.36	1152	7932	79.3	20.7	15-30
0.600	596	8528	85.3	14.7	8-22
0.075	1236	9764	97.6	2.4	0-5

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ಬಿಜಿಎಂಸಿ, ಬೆಂಗಳೂರು

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Date of Testing : 27.05.2022
Material Type : Wet Mix Macadam

Oven Dry.Wt, grar 10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	189	189	1.9	98.1	95-100
22.4	2562	2751	27.5	72.5	60-80
11.2	2145	4896	49.0	51.0	40-60
4.75	1898	6794	67.9	32.1	25-40
2.36	1165	7959	79.6	20.4	15-30
0.600	525	8484	84.8	15.2	8-22
0.075	1245	9729	97.3	2.7	0-5

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K. Sreejith

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For CIVIL AIM CONSULTANTS & ENGINEERS
ಅಧಿಕಾರಿತ ಸಹಿ
ಶಿಕ್ಷಕರು ಉಪವಿಭಾಗ
ಜವಾಬ್ದಾರಿ, ಬೆಂಗಳೂರು
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 Date of Testing : 27.05.2022
 Material Type : Wet Mix Macadam

Oven Dry.Wt, gram

10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	188	188	1.9	98.1	95-100
22.4	2536	2724	27.2	72.8	60-80
11.2	2165	4889	48.9	51.1	40-60
4.75	1845	6734	67.3	32.7	25-40
2.36	1185	7919	79.2	20.8	15-30
0.600	546	8465	84.7	15.4	8-22
0.075	1265	9730	97.3	2.7	0-5

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For CIVIL AIM CONSULTANTS & ENGINEERS

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 ಶಿಬ್ಬಹಳ್ಳಿ ಉಪವಿಭಾಗ
 ಜಿಬಿಎಂಸಿ, ಬೆಂಗಳೂರು
 Authorised Signatory

No. 01, Satvika Nilaya, Opp. Widia Poorna Prajna School,
 Ramaiah Layout, Nagasandra, Bangalore - 560 073.

Ph: 9591618639, GSTIN: 29CNWPD9510K1ZB, Email: civilaimconsultants@gmail.com

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NABL Accredited As Per ISO/IEC 17025:2017 Laboratory



Job No.: CACE/BBMP/CK/W.No.12/2022-23

Date : 27.05.2022

GRADATION FOR WMM

Client : Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
Agency : Sri. Chikkaboregowda Karigowda (CKG Constructions Private Limited), Contractor, Mysore.
Name of Work : De-setting and Re-setting of Drain and Re-Asphalting of roads to Chikkasandra area in Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.
IS Code: : IS 2386 (Part 1):1963(RA 2011)
Date of Testing : 27.05.2022
Material Type : Wet Mix Macadam

Oven Dry.Wt, gram

10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	175	175	1.8	98.3	95-100
22.4	2562	2737	27.4	72.6	60-80
11.2	2158	4895	49.0	51.1	40-60
4.75	1846	6741	67.4	32.6	25-40
2.36	1198	7939	79.4	20.6	15-30
0.600	536	8475	84.8	15.3	8-22
0.075	1265	9740	97.4	2.6	0-5

Note:

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K. Sreenivas

For CIVIL AIM CONSULTANTS & ENGINEERS
ಅಧಿಕಾರವಾಗಿ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಶಿಬಿರ ಹುಬ್ಬಳ್ಳಿ
ಬಿ.ಬಿ.ಎಂ.ಕೆ. ಬೆಂಗಳೂರು
Authorised Signatory

01, Satvika Nilaya, Opp. Widia Poorna Prajna School,
maiah Layout, Nagasandra, Bangalore - 560 073.

: 9591618639, GSTIN: 29CNWPD9510K1ZB, Email: civilaimconsultants@gmail.com



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Job No.: CACE/BBMP/CK/W.No.12/2022-23

Date: 25.05.2022

Aggregate Impact Value

Client	Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
Agency	Sri. Chikkaboregowda Karigowda (CKG Constructions Private Limited), Contractor, Mysore.
Name of the Work	De-setting and Re-setting of Drain and Re-Asphalting of roads to Chikkasandra area in Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.
IS Code	IS 2386 (Part 4):1963(RA 2011)
Type of Mix	Wet Mix macadam
Date of Testing	25.05.2022

Sl No.	Details	Test No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	381	383	22.19
2	Weight of aggregate passing 2.36 mm sieve after the test = W_2 g	84	85.5	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	297	297.5	
4	Aggregate Impact value = percent fines $100 * (W_2/W_1)\%$	22.05	22.32	

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%(As per MORTH Specication table 400.12)

Note:

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K. Sreejith

AE-12

For CIVIL AIM CONSULTANTS & ENGINEERS

Pratishtha
ನಹಾಯಕ ಕಾಯ್ದಾಳಕ ಅಭಿಯಂತರ
ಶೆಟ್ಟಹಳ್ಳಿ ಉಪವಿಭಾಗ
ಬಿಬಿಎಂಸಿ, ಬೆಂಗಳೂರು
Authorised Signatory



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Job No.: CACE/BBMP/CK/W.No.12/2022-23

Date: 27.05.2022

Aggregate Impact Value

Client	Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
Agency	Sri. Chikkaboregowda Karigowda (CKG Constructions Private Limited), Contractor, Mysore.
Name of the Work	De-setting and Re-setting of Drain and Re-Asphalting of roads to Chikkasandra area in Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.
IS Code	IS 2386 (Part 4):1963(RA 2011)
Type of Mix	Wet Mix macadam
Date of Testing	27.05.2022

Sl No.	Details	Test No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	383	385	22.66
2	Weight of aggregate passing 2.36 mm sieve after the test = W_2 g	86	88	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	297	297	
4	Aggregate Impact value = percent fines $100 * (W_2/W_1)\%$	22.45	22.86	

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%(As per MORTH Specification table 400.12)

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For CIVIL AIM CONSULTANTS & ENGINEERS

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರ
ಶಿಕ್ಷಕರ ಉಪವಿಭಾಗ
ಜಬಬಂದಿ, ಬೆಂಗಳೂರು

Authorised Signatory



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Job No.: CACE/BBMP/CK/W.No.12/2022-23

Date : 25.05.2022

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
Agency	Sri. Chikkaboregowda Karigowda (CKG Constructions Private Limited), Contractor, Mysore.
Name of Work	De-setting and Re-setting of Drain and Re-Asphalting of roads to Chikkasandra area in Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.
BIS code:	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	25.05.2022

Sl no	Test	1	2	Requirements as per MORTH 5th edition table no 400.12
1	Flakiness Index %	11.20	11.60	Combined Flakiness & Elongation index Max 35%
2	Elongation Index %	12.90	13.20	
	Combined Flakiness & Elongation index	24.10	24.80	

Note:

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15/05/22

A.E.T.

For CIVIL AIM CONSULTANTS & ENGINEERS

ಅವಧಾರಣೆ
ಶಿಷ್ಟಕೃಷ್ಣ ಉಪವಿಭಾಗ
ಜವನಕೆರೆ, ಬೆಂಗಳೂರು

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Job No.: CACE/BBMP/CK/W.No.12/2022-23

Date : 25.05.2022

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
Agency	Sri. Chikkaboregowda Karigowda (CKG Constructions Private Limited), Contractor, Mysore.
Name of Work	De-setting and Re-setting of Drain and Re-Asphalting of roads to Chikkasandra area in Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.
BIS code:	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	25.05.2022

Sl no	Test	1	2	Requirements as per MORTH 5th edition table no 400.12
1	Flakiness Index %	11.20	11.60	Combined Flakiness & Elongation index Max 35%
2	Elongation Index %	13.10	13.20	
	Combined Flakiness & Elongation index	24.30	24.80	

Note:

- This test report should not be reproduced except in full, without written approval of the laboratory
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Green

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ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಶಿಕ್ಷಕರ ಉಪವಿಭಾಗ
ಬಜವಂಪಿ, ಬೆಂಗಳೂರು

For CIVIL AIM CONSULTANTS & ENGINEERS

Prakash
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Job No.: CACE/BBMP/CK/W.No.12/2022-23

Date : 27.05.2022

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
Agency	Sri. Chikkaboregowda Karigowda (CKG Constructions Private Limited), Contractor, Mysore.
Name of Work	De-setting and Re-setting of Drain and Re-Asphalting of roads to Chikkasandra area in Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.
BIS code:	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	27.05.2022

Sl no	Test	1	2	Requirements as per MORTH 5th edition table no 400.12
1	Flakiness Index %	11.90	12.50	Combined Flakiness & Elongation index Max 35%
2	Elongation Index %	13.20	13.90	
	Combined Flakiness & Elongation index	25.10	26.40	

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[Signature]
Authorised Signatory

[Signature]
ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ
ಜಜಿವಂತಿ, ಬೆಂಗಳೂರು

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Job No.: CACE/BBMP/CK/W.No.12/2022-23

Date : 25.05.2022

ATTERBERG LIMITS TEST FOR WMM

Client : Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
Agency : Sri. Chikkaboregowda Karigowda (CKG Constructions Private Limited), Contractor, Mysore.
Name of Work : De-setting and Re-setting of Drain and Re-Asphalting of roads to Chikkasandra area in Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.
IS Code: : IS 2720(Part 5):1985
Date of Testing : 23.05.2022 to 25.05.2022
Material Type : Wet Mix Macadam

Sl. No.	Particulars	Test Results	Requirement as per MORTH 5th edition Cl.406.2.1.2
1	Liquid Limit	20.00	-
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

Note:

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16/5/2022

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Authorised Signatory

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು

ಶಿಬ್ಬಹಳ್ಳಿ ಉಪವಿಭಾಗ

ಬಿಬಿಎಂಸಿ, ಬೆಂಗಳೂರು



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ATTERBERG LIMITS TEST FOR WMM

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Material Type : Wet Mix Macadam

Sl. No.	Particulars	Test Results	Requirement as per MORTH 5th edition CL406.2.1.2
1	Liquid Limit	19.50	-
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

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K. Sreejith

For CIVIL AIM CONSULTANTS & ENGINEERS

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ಬಿಬಿಎಂಸಿ, ಬೆಂಗಳೂರು

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Material Type : Wet Mix Macadam

Sl. No.	Particulars	Test Results	Requirement as per MORTH 5th edition Cl.406.2.1.2
1	Liquid Limit	21.50	-
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

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For CIVIL AIM CONSULTANTS & ENGINEERS

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prkenth
Authorised Signatory

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ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ
ಬಿಬಿಎಂಸಿ, ಬೆಂಗಳೂರು



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Sreeja

For CIVIL AIM CONSULTANTS & ENGINEERS

AE-12

Sreeja
Authorised Signatory

Dr.
ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ
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Date 27.05.2022

ATTERBERG LIMITS TEST FOR WMM

Client : Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
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S. K. Srinivas

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[Signature]
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ಶಿಬ್ಬಹಳ್ಳಿ ಉಪವಿಭಾಗ
ಜಿಬಿಎಂಸಿ, ಬೆಂಗಳೂರು

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ATTERBERG LIMITS TEST FOR WMM

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Agency : Sri. Chikkaboregowda Karigowda (CKG Constructions Private Limited), Contractor, Mysore.
Name of Work : De-setting and Re-setting of Drain and Re-Asphalting of roads to Chikkasandra area in Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.
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Date of Testing : 25.05.2022 to 27.05.2022
Material Type : Wet Mix Macadam

Sl. No.	Particulars	Test Results	Requirement as per MORTH 5th edition Cl.406.2.1.2
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K. Sreenivas

AE-12

For CIVIL AIM CONSULTANTS & ENGINEERS

ಕಾರ್ಯಕರ್ತ ಕಾರ್ಯದರ್ಶಿ ಅಭಿಯಂತರರು
ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ
ಬಿಜಿಎಂಪಿ, ಬೆಂಗಳೂರು

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Job No.: CACE/BBMP/CK/W.No.12/2022-23

Date 27.05.2022

ATTERBERG LIMITS TEST FOR WMM

Client : Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
Agency : Sri. Chikkaboregowda Karigowda (CKG Constructions Private Limited), Contractor, Mysore.
Name of Work : De-setting and Re-setting of Drain and Re-Asphalting of roads to Chikkasandra area in Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.
IS Code: : IS 2720(Part 5):1985
Date of Testing : 25.05.2022 to 27.05.2022
Material Type : Wet Mix Macadam

Sl. No.	Particulars	Test Results	Requirement as per MORTH 5th edition CL406.2.1.2
1	Liquid Limit	20.50	-
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Green

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For CIVIL AIM CONSULTANTS & ENGINEERS

Signature
ಸಹಾಯಕ ಕಾರ್ಯದರ್ಶಿ ಅಭಿಯಂತರರು
ಶಿಬ್ಬಹಳ್ಳಿ ಉಪವಿಭಾಗ
ಜಿಬಿಎಂಸಿ, ಬೆಂಗಳೂರು
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Job No.: CACE/BBMP/CK/W.No.12/2022-23

Date 27.05.2022

ATTERBERG LIMITS TEST FOR WMM

Client : Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
Agency : Sri. Chikkaboregowda Karigowda (CKG Constructions Private Limited), Contractor, Mysore.
Name of Work : De-setting and Re-setting of Drain and Re-Asphalting of roads to Chikkasandra area in Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.
IS Code : IS 2720(Part 5):1985
Date of Testing : 25.05.2022 to 27.05.2022
Material Type : Wet Mix Macadam

Sl. No.	Particulars	Test Results	Requirement as per MORTH 5th edition Cl.406.2.1.2
1	Liquid Limit	19.00	-
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

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For CIVIL AIM CONSULTANTS & ENGINEERS

Per
ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರ
ಶಿಬ್ಬಹಳ್ಳಿ ಉಪವಿಭಾಗ
ಬಿಬಿಎಂಸಿ, ಬೆಂಗಳೂರು
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Job No.: CACE/BBMP/CK/W.No.12/2022-23

Date: 13.06.2022

Aggregate Gradation Test

Client	Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
Agency	Sri. Chikkaboregowda Karigowda (CKG Constructions Private Limited), Contractor, Mysore.
Name of the work	De-setting and Re-setting of Drain and Re-Asphalting of roads to Chikkasandra area in Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.
Sample ID	Hotmix Plant, Bangalore.
IS Code:	IS 2386 (Part 1):1963(RA 2002)
Type of Mix	Bituminous Macadam
Date of Testing	13.06.2022

5000 gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Specification as per MORTH 5th edition table 500-7	Remarks
26.5	0	0	0	100	100	Gradation satisfies Grade-II MORTH 5th edition
19	362	7.24	7.24	92.76	90-100	
13.2	1856	37.12	44.36	55.64	56-88	
4.75	1730	34.60	78.96	21.04	16-36	
2.36	665	13.30	92.26	7.74	4-19	
0.3	159	3.18	95.44	4.56	2-10	
0.075	89	1.78	97.22	2.78	0-8	

Total Weight of Sample:

5000 gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Specification as per MORTH 5th edition table 500-7	Remarks
26.5	0	0	0	100	100	Gradation satisfies Grade-II MORTH 5th edition
19	389	7.78	7.78	92.22	90-100	
13.2	1530	30.60	38.38	61.62	56-88	
4.75	1526	30.52	68.90	31.10	16-36	
2.36	689	13.78	82.68	17.32	4-19	
0.3	580	11.60	94.28	5.72	2-10	
0.075	112	2.24	96.52	3.48	0-8	

Note:

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Signature

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ಜಿಲ್ಲಾಕಟ್ಟು ಉಪವಿಭಾಗ

ಬಿಬಿಎಂಪಿ, ಬೆಂಗಳೂರು

For CIVIL AIM CONSULTANTS & ENGINEERS

CIVIL AIM CONSULTANTS & ENGINEERS

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Job No.: CACE/BBMP/CK/W.No.12/2022-23

Date : 13.06.2022

Aggregate Impact Value

Client	Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
Agency	Sri. Chikkaboregowda Karigowda (CKG Constructions Private Limited), Contractor, Mysore.
Name of the Work	De-setting and Re-setting of Drain and Re-Asphalting of roads to Chikkasandra area in Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.
Source / Location	Hot mix Plant, Bangalore
IS Code	IS 2386 (Part 4):1963(RA 2011)
Type of Mix	Bituminous Macadam
Date of Testing	13.06.2022

Sl No.	Details	Test No.		Average
		1	4	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	381	383	22.51
2	Weight of aggregate passing 2.36 mm sieve after the test = W_2 g	85	87	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	296	296	
4	Aggregate Impact value = percent fines	22.31	22.72	
	$100 * (W_2/W_1)\%$			

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Macadam is 30% (Specification as per MORTH 5th edition table no 500.6)

Note:

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Job No.: CACE/BBMP/CK/W.No.12/2022-23

Date: 13.06.2022

TEST REPORT

Client	:	Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
Agency	:	Sri. Chikkaboregowda Karigowda (CKG Constructions Private Limited), Contractor, Mysore..
Name of the work	:	De-setting and Re-setting of Drain and Re-Asphalting of roads to Chikkasandra area in Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.
IS Code	:	IS 73:2013, IS 1203:1978(RA 2008), IS 1205:1978(RA 2009), IS 1208:1978(RA 2009), IS 1209:1978(RA 2009)
Source of location	:	Hot mix Plant, Bangalore, VG 30
Date of testing	:	13.06.2022

The results of the tests conducted on the bitumen sample using for Bituminous Macadam

Sl. No	Description	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 °C, 1/10 mm	49	Min 45
2	Softening point, °C	51	Min. 47
3	Ductility at 27°C, cm	100 >	Min. 40
4	Flash Point, °C	298	Min. 220

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15.06.2022

15.06.2022

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ಶಿಬ್ಬಹಳ್ಳಿ ಉಪವಿಭಾಗ
ಜಿ.ಪಿ.ಎಂ.ಸಿ., ಬೆಂಗಳೂರು
Authorised Signatory



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Job No.: CACE/BBMP/CK/W.No.12/2022-23

Date : 13.06.2022

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
Agency	Sri. Chikkaboregowda Karigowda (CKG Constructions Private Limited), Contractor, Mysore.
Name of Work	De-setting and Re-setting of Drain and Re-Asphalting of roads to Chikkasandra area in Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.
BIS Code:	IS 2386(Part 1): 1963 (RA 2011)
Type of Mix	Bituminous Macadam
Date of Testing	13.06.2022

Sl no	Test	1	2	Requirements as per MORTH 5th edition table no 500.6
1	Flakiness Index	12.2	12.8	Combined Flakiness & Elongation index Max 35%
2	Elongation Index	13.6	13.9	
	Combined Flakiness & Elongation index	25.8	26.7	

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3. Any Query regarding the report must be reported within 30 days from the date of testing.

K. Sreenivas

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For CIVIL AIM CONSULTANTS & ENGINEERS

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ಬಜವಂತಿ, ಬೆಂಗಳೂರು

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Authorized Signatory

Job No.: CACE/BBMP/CK/W.No.12/2022-23

Date : 15.06.2022

Specific Gravity And Water Absorption Test

Client	Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
Agency	Sri. Chikkaboregowda Karigowda (CKG Constructions Private Limited), Contractor, Mysore.
Name of the Work	De-setting and Re-setting of Drain and Re-Asphalting of roads to Chikkasandra area in Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.
Source / Location	Hotmix Plant, Bangalore.
IS code:	IS 2386 (Part 3):1963(RA 2011)
Type of Mix	Bituminous Macadam
Date of Testing	13.06.2022 to 15.06.2022

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2021	2023	2025	
2	Weight of basket suspended in water	W_2 g	752	752	752	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1269	1271	1273	
4	Weight of saturated surface dry aggregate in air	W_3 g	2017	2019	2021	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_s)$ g	748	748	748	
6	Weight of oven dried aggregate	W_4 g	2012	2013	2014	
7	Specific Gravity	$W_4 / (W_3 - W_s)$	2.690	2.691	2.693	2.691
8	Apparent Specific gravity	$W_4 / (W_4 - W_s)$	2.708	2.713	2.718	2.713
9	Water Absorption	$((W_3 - W_4) * 100) / W_4$	0.25%	0.30%	0.35%	0.30%

Comments:

→ Maximum allowable Aggregate Water absorption value for Bituminous Macadam is 2.0%(AS per MORTH specification 5th edition table no 500.6)

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Job No.: CACE/BBMP/CK/W.No.12/2022-23

Date : 16.06.2022

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS MACADAM MIX AASHTO T 164 & AASHTO T 30

CLIENT	Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
AGENCY	Sri. Chikkaboregowda Karigowda (CKG Constructions Private Limited), Contractor, Mysore.
NAME OF THE WORK	De-setting and Re-setting of Drain and Re-Asphalting of roads to Chikkasandra area in Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.
SAMPLE I/D	Sample Supplied by Agency
DATE OF TESTING	16.06.2022

BITUMEN CONTENT DETERMINATION

Description	Test 1	Test 2	Requirements as per MORTH 5th edition Table 500.7
1. Weight of Mixture before Test, g	500	500	Grade II, Min 3.4
2. Weight of Mixture after Test, g	483	483.5	
3. Weight of Asphalt and Mineral matter Extracted, g	-	-	
4. Weight of Mineral Matter, g.	-	-	
5. Weight of Ash, g			
6. Weight of Bitumen Extracted, g. (corrected)	17	16.50	
7. Bitumen content in %	3.40	3.30	
8. Average	3.35		

GRADATION AFTER EXTRACTION

SIEVE SIZE	Test 1				JOB MIX
mm	Weight Retained, gm	% Retained	% Cumulative Retained	% Passing	Gradation
26.5	0	0	0	100	100
19	36.5	7.56	7.56	92.44	90-100
13.2	169.8	35.16	42.71	57.29	56-88
4.75	150.9	31.24	73.95	26.05	16-36
2.36	59.6	12.34	86.29	13.71	4-19
0.3	30.5	6.31	92.61	7.39	2-10
0.075	8.3	1.72	94.33	5.67	0-8

SIEVE SIZE	Test 2				JOB MIX
mm	Weight Retained, gm	% Retained	% Cumulative Retained	% Passing	Gradation
26.5	0	0	0	100	100
19	32.5	6.72	6.72	93.28	90-100
13.2	149.5	30.92	37.64	62.36	56-88
4.75	180.6	37.35	74.99	25.01	16-36
2.36	75.8	15.68	90.67	9.33	4-19
0.3	22.3	4.61	95.28	4.72	2-10
0.075	9.2	1.90	97.19	2.81	0-8

Note:

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Ramaiah Layout, Nagasandra, Bangalore - 560 073.

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Job No.: CACE/BBMP/CK/W.No.12/2022-23

Date : 16.06.2022

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS MACADAM MIX AASHTO T 164 & AASHTO T 30

CLIENT	Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
AGENCY	Sri. Chikkaboregowda Karigowda (CKG Constructions Private Limited), Contractor, Mysore.
NAME OF THE WORK	De-setting and Re-setting of Drain and Re-Asphalting of roads to Chikkasandra area in Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.
SAMPLE I/D	Sample Supplied by Agency
DATE OF TESTING	16.06.2022

BITUMEN CONTENT DETERMINATION

Description	Test 1	Test 2	Requirements as per MORTH 5th edition Table 500.7
1. Weight of Mixture before Test, g	500	500	Grade II, Min 3.4
2. Weight of Mixture after Test, g	482.5	483	
3. Weight of Asphalt and Mineral matter Extracted, g	-	-	
4. Weight of Mineral Matter, g.	-	-	
5. Weight of Ash, g			
6. Weight of Bitumen Extracted, g. (corrected)	17.5	17.00	
7. Bitumen content in %	3.50	3.40	
8. Average	3.45		

GRADATION AFTER EXTRACTION

SIEVE SIZE	Test 1				JOB MIX
mm	Weight Retained, gm	% Retained	% Cumulative Retained	% Passing	Gradation
26.5	0	0	0	100	100
19	33.8	7.01	7.01	92.99	90-100
13.2	164.5	34.09	41.10	58.90	56-88
4.75	152.6	31.63	72.73	27.27	16-36
2.36	56.8	11.77	84.50	15.50	4-19
0.3	36.3	7.52	92.02	7.98	2-10
0.075	8.9	1.84	93.87	6.13	0-8

SIEVE SIZE	Test 2				JOB MIX
mm	Weight Retained, gm	% Retained	% Cumulative Retained	% Passing	Gradation
26.5	0	0	0	100	100
19	36.4	7.54	7.54	92.46	90-100
13.2	148.9	30.83	38.36	61.64	56-88
4.75	182.65	37.82	76.18	23.82	16-36
2.36	76.9	15.92	92.10	7.90	4-19
0.3	22.3	4.62	96.72	3.28	2-10
0.075	7.6	1.57	98.29	1.71	0-8

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No. 01, Satvika Nilaya, Opp. Widia Poorna Prajna School,

Ramaiah Layout, Nagasandra, Bangalore - 560 073.

Ph: 9591618639, GSTIN: 29CNWPD9510K1ZB, Email: civilaimconsultants@gmail.com

For CIVIL AIM CONSULTANTS & ENGINEERS

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Job No.: CACE/BBMP/CK/W.No.12/2022-23

Date : 16.06.2022

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS MACADAM MIX AASHTO T 164 & AASHTO T 30

CLIENT	Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
AGENCY	Sri. Chikkaboregowda Karigowda (CKG Constructions Private Limited), Contractor, Mysore.
NAME OF THE WORK	De-setting and Re-setting of Drain and Re-Asphalting of roads to Chikkasandra area in Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.
SAMPLE I/D	Sample Supplied by Agency
DATE OF TESTING	16.06.2022

BITUMEN CONTENT DETERMINATION

BINDER CONTENT DETERMINATION			
Description	Test 1	Test 2	Requirements as per MORTH 5th edition Table 500.7
1. Weight of Mixture before Test, g	500	500	Grade II, Min 3.4
2. Weight of Mixture after Test, g	482.5	483	
3. Weight of Asphalt and Mineral matter Extracted, g	-	-	
4. Weight of Mineral Matter, g.	-	-	
5. Weight of Ash, g			
6. Weight of Bitumen Extracted, g. (corrected)	17.5	17.00	
7. Bitumen content in %	3.50	3.40	
8. Average	3.45		
GRADATION AFTER EXTRACTION			

GRADATION AFTER EXTRACTION

SIEVE SIZE	Test 1				JOB MIX
mm	Weight Retained, gm	% Retained	% Cumulative Retained	% Passing	Gradation
26.5	0	0	0	100	100
19	34.9	7.23	7.23	92.77	90-100
13.2	162.5	33.68	40.91	59.09	56-88
4.75	156.2	32.37	73.28	26.72	16-36
2.36	58.9	12.21	85.49	14.51	4-19
0.3	30.6	6.34	91.83	8.17	2-10
0.075	8.4	1.74	93.58	6.42	0-8

SIEVE SIZE	Test 2				JOB MIX
mm	Weight Retained, gm	% Retained	% Cumulative Retained	% Passing	Gradation
26.5	0	0	0	100	100
19	36.8	7.62	7.62	92.38	90-100
13.2	145.2	30.06	37.68	62.32	56-88
4.75	185.2	38.34	76.02	23.98	16-36
2.36	76.9	15.92	91.95	8.05	4-19
0.3	24.3	5.03	96.98	3.02	2-10
0.075	9.36	1.94	98.92	1.08	0-8

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ಶಿಕ್ಷಕರು ಉಪನಿರ್ದೇಶಕರು

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Date : 16.06.2022

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS MACADAM MIX AASHTO T 164 & AASHTO T 30

CLIENT	Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
AGENCY	Sri. Chikkaboregowda Karigowda (CKG Constructions Private Limited), Contractor, Mysore.
NAME OF THE WORK	De-setting and Re-setting of Drain and Re-Asphalting of roads to Chikkasandra area in Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.
SAMPLE I/D	Sample Supplied by Agency
DATE OF TESTING	16.06.2022

BITUMEN CONTENT DETERMINATION

Description	Test 1	Test 2	Requirements as per MORTH 5th edition Table 500.7
1. Weight of Mixture before Test, g	500	500	Grade II, Min 3.4
2. Weight of Mixture after Test, g	483	482.5	
3. Weight of Asphalt and Mineral matter Extracted, g	-	-	
4. Weight of Mineral Matter, g.	-	-	
5. Weight of Ash, g			
6. Weight of Bitumen Extracted, g. (corrected)	17	17.50	
7. Bitumen content in %	3.40	3.50	
8. Average	3.45		

GRADATION AFTER EXTRACTION

SIEVE SIZE	Test 1				JOB MIX
mm	Weight Retained, gm	% Retained	% Cumulative Retained	% Passing	Gradation
26.5	0	0	0	100	100
19	38.9	8.05	8.05	91.95	90-100
13.2	162.5	33.64	41.70	58.30	56-88
4.75	158.6	32.84	74.53	25.47	16-36
2.36	55.3	11.45	85.98	14.02	4-19
0.3	39.6	8.20	94.18	5.82	2-10
0.075	9.5	1.97	96.15	3.85	0-8

SIEVE SIZE	Test 2				JOB MIX
mm	Weight Retained, gm	% Retained	% Cumulative Retained	% Passing	Gradation
26.5	0	0	0	100	100
19	29.6	6.13	6.13	93.87	90-100
13.2	145.3	30.11	36.25	63.75	56-88
4.75	186.8	38.72	74.96	25.04	16-36
2.36	72.5	15.03	89.99	10.01	4-19
0.3	26.5	5.49	95.48	4.52	2-10
0.075	8.2	1.70	97.18	2.82	0-8

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Job No.: CACE/BBMP/CK/W.No.12/2022-23

Date : 16.06.2022

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS MACADAM MIX AASHTO T 164 & AASHTO T 30

CLIENT	Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
AGENCY	Sri. Chikkaboregowda Karigowda (CKG Constructions Private Limited), Contractor, Mysore.
NAME OF THE WORK	De-setting and Re-setting of Drain and Re-Asphalting of roads to Chikkasandra area in Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.
SAMPLE I/D	Sample Supplied by Agency
DATE OF TESTING	16.06.2022

BITUMEN CONTENT DETERMINATION

Description	Test 1	Test 2	Requirements as per MORTH 5th edition Table 500.7
1. Weight of Mixture before Test, g	500	500	Grade II, Min 3.4
2. Weight of Mixture after Test, g	483.5	482.5	
3. Weight of Asphalt and Mineral matter Extracted, g	-	-	
4. Weight of Mineral Matter, g.	-	-	
5. Weight of Ash, g			
6. Weight of Bitumen Extracted, g. (corrected)	16.5	17.50	
7. Bitumen content in %	3.30	3.50	
8. Average	3.40		

GRADATION AFTER EXTRACTION

SIEVE SIZE	Test 1				JOB MIX
mm	Weight Retained, gm	% Retained	% Cumulative Retained	% Passing	Gradation
26.5	0	0	0	100	100
19	33.9	7.01	7.01	92.99	90-100
13.2	162.5	33.61	40.62	59.38	56-88
4.75	156.8	32.43	73.05	26.95	16-36
2.36	54.2	11.21	84.26	15.74	4-19
0.3	36.5	7.55	91.81	8.19	2-10
0.075	8.9	1.84	93.65	6.35	0-8

SIEVE SIZE	Test 2				JOB MIX
mm	Weight Retained, gm	% Retained	% Cumulative Retained	% Passing	Gradation
26.5	0	0	0	100	100
19	34.5	7.15	7.15	92.85	90-100
13.2	152.4	31.59	38.74	61.26	56-88
4.75	172.6	35.77	74.51	25.49	16-36
2.36	78.9	16.35	90.86	9.14	4-19
0.3	26.5	5.49	96.35	3.65	2-10
0.075	5.5	1.14	97.49	2.51	0-8

Note:

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No. 01, Satvika Nilaya, Opp. Vidya Peerna Prajna School, within 30 days from the date of testing

Ramaiah Layout, Nagasandra, Bangalore - 560 073.

Ph: 9591618639, GSTIN: 29CNWPD9510K1ZB, Email: civilaimconsultants@gmail.com

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Job No.: CACE/BBMP/CK/W.No.12/2022-23

Date : 21.06.2022

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS MACADAM MIX AASHTO T 164 & AASHTO T 30

CLIENT	Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
AGENCY	Sri. Chikkaboregowda Karigowda (CKG Constructions Private Limited), Contractor, Mysore.
NAME OF THE WORK	De-setting and Re-setting of Drain and Re-Asphalting of roads to Chikkasandra area in Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.
SAMPLE I/D	Sample Supplied by Agency
DATE OF TESTING	21.06.2022

BITUMEN CONTENT DETERMINATION

Description	Test 1	Test 2	Requirements as per MORTH 5th edition Table 500.7
1. Weight of Mixture before Test, g	500	500	Grade II, Min 3.4
2. Weight of Mixture after Test, g	483	483.5	
3. Weight of Asphalt and Mineral matter Extracted, g	-	-	
4. Weight of Mineral Matter, g.	-	-	
5. Weight of Ash, g			
6. Weight of Bitumen Extracted, g. (corrected)	17	16.50	
7. Bitumen content in %	3.40	3.30	
8. Average	3.35		

GRADATION AFTER EXTRACTION

SIEVE SIZE	Test 1				JOB MIX
mm	Weight Retained, gm	% Retained	% Cumulative Retained	% Passing	Gradation
26.5	0	0	0	100	100
19	34.5	7.14	7.14	92.86	90-100
13.2	168.9	34.97	42.11	57.89	56-88
4.75	156.2	32.34	74.45	25.55	16-36
2.36	50.3	10.41	84.87	15.13	4-19
0.3	38.2	7.91	92.77	7.23	2-10
0.075	8.4	1.74	94.51	5.49	0-8

SIEVE SIZE	Test 2				JOB MIX
mm	Weight Retained, gm	% Retained	% Cumulative Retained	% Passing	Gradation
26.5	0	0	0	100	100
19	38.9	8.05	8.05	91.95	90-100
13.2	146.5	30.30	38.35	61.65	56-88
4.75	182.4	37.72	76.07	23.93	16-36
2.36	79.3	16.40	92.47	7.53	4-19
0.3	19.5	4.03	96.50	3.50	2-10
0.075	5.6	1.16	97.66	2.34	0-8

Note:

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Job No.: CACE/BBMP/CK/W.No.12/2022-23

Date : 21.06.2022

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS MACADAM MIX AASHTO T 164 & AASHTO T 30

CLIENT	Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
AGENCY	Sri. Chikkaboregowda Karigowda (CKG Constructions Private Limited), Contractor, Mysore.
NAME OF THE WORK	De-setting and Re-setting of Drain and Re-Asphalting of roads to Chikkasandra area in Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.
SAMPLE I/D	Sample Supplied by Agency
DATE OF TESTING	21.06.2022

BITUMEN CONTENT DETERMINATION

SEVERITY CONTENT DETERMINATION			
Description	Test 1	Test 2	Requirements as per MORTH 5th edition Table 500.7
1. Weight of Mixture before Test, g	500	500	Grade II, Min 3.4
2. Weight of Mixture after Test, g	483.5	482.5	
3. Weight of Asphalt and Mineral matter Extracted, g	-	-	
4. Weight of Mineral Matter, g.	-	-	
5. Weight of Ash, g			
6. Weight of Bitumen Extracted, g. (corrected)	16.5	17.50	
7. Bitumen content in %	3.30	3.50	
8. Average	3.40		
GRADATION AFTER EXTRACTION			

GRADATION AFTER EXTRACTION

SIEVE SIZE	Test 1				JOB MIX
mm	Weight Retained, gm	% Retained	% Cumulative Retained	% Passing	Gradation
26.5	0	0	0	100	100
19	29.6	6.12	6.12	93.88	90-100
13.2	168.2	34.79	40.91	59.09	56-88
4.75	155.3	32.12	73.03	26.97	16-36
2.36	50.6	10.47	83.50	16.50	4-19
0.3	37.6	7.78	91.27	8.73	2-10
0.075	8.9	1.84	93.11	6.89	0-8

SIEVE SIZE	Test 2				JOB MIX
mm	Weight Retained, gm	% Retained	% Cumulative Retained	% Passing	Gradation
26.5	0	0	0	100	100
19	34.8	7.21	7.21	92.79	90-100
13.2	146.5	30.36	37.58	62.42	56-88
4.75	186.8	38.72	76.29	23.71	16-36
2.36	76.9	15.94	92.23	7.77	4-19
0.3	22.6	4.68	96.91	3.09	2-10
0.075	5.4	1.12	98.03	1.97	0-8

Note:

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ಶಿಕ್ಷಣ, ಉಪವಿಭಾಗ

ಮುಖ್ಯಸ್ಥರ ಕಛೇರಿ

21.06.2022

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Job No.: CACE/BBMP/CK/W.No.12/2022-23

Date : 21.06.2022

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS MACADAM MIX AASHTO T 164 & AASHTO T 30

CLIENT	Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
AGENCY	Sri. Chikkaboregowda Karigowda (CKG Constructions Private Limited), Contractor, Mysore.
NAME OF THE WORK	De-setting and Re-setting of Drain and Re-Asphalting of roads to Chikkasandra area in Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.
SAMPLE I/D	Sample Supplied by Agency
DATE OF TESTING	21.06.2022

BITUMEN CONTENT DETERMINATION

Description	Test 1	Test 2	Requirements as per MORTH 5th edition Table 500.7
1. Weight of Mixture before Test, g	500	500	Grade II, Min 3.4
2. Weight of Mixture after Test, g	483	482.5	
3. Weight of Asphalt and Mineral matter Extracted, g	-	-	
4. Weight of Mineral Matter, g.	-	-	
5. Weight of Ash, g			
6. Weight of Bitumen Extracted, g. (corrected)	17	17.50	
7. Bitumen content in %	3.40	3.50	
8. Average	3.45		

GRADATION AFTER EXTRACTION

SIEVE SIZE	Test 1				JOB MIX
mm	Weight Retained, gm	% Retained	% Cumulative Retained	% Passing	Gradation
26.5	0	0	0	100	100
19	24.6	5.09	5.09	94.91	90-100
13.2	158.9	32.90	37.99	62.01	56-88
4.75	169.3	35.05	73.04	26.96	16-36
2.36	55.6	11.51	84.55	15.45	4-19
0.3	38.6	7.99	92.55	7.45	2-10
0.075	9.2	1.90	94.45	5.55	0-8

SIEVE SIZE	Test 2				JOB MIX
mm	Weight Retained, gm	% Retained	% Cumulative Retained	% Passing	Gradation
26.5	0	0	0	100	100
19	29.4	6.09	6.09	93.91	90-100
13.2	142.5	29.53	35.63	64.37	56-88
4.75	186.9	38.74	74.36	25.64	16-36
2.36	65.3	13.53	87.90	12.10	4-19
0.3	25.8	5.35	93.24	6.76	2-10
0.075	8.2	1.70	94.94	5.06	0-8

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Job No.: CACE/BBMP/CK/W.No.12/2022-23

Date: 15.06.2022

Aggregate Impact Value

Client	Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
Agency	Sri. Chikkaboregowda Karigowda (CKG Constructions Private Limited), Contractor, Mysore.
Name of the Work	De-setting and Re-setting of Drain and Re-Asphalting of roads to Chikkasandra area in Ward No.12 Shettyhalli Sub Division, BBMP,
IS Code	IS 2386 (Part 1):1963(RA 2011)
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	15.06.2022

Sl No.	Details	Test No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	382	384	22.45
2	Weight of aggregate passing 2.36 mm sieve after the test = W_2 g	85	87	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	297	297	
4	Aggregate Impact value = percent fines $100 * (W_2/W_1)\%$	22.25	22.66	

Comments:

→ Maximum allowable Aggregate Impact value for Semi Dense Bituminous Concrete is 27%

Note:

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G. Sreekanth

AE-12

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Job No.: CACE/BBMP/CK/W.No.12/2022-23

Date : 15.06.2022

Aggregate Gradation Test IS : 2386 Part I

Client	Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
Agency	Sri. Chikkaboregowda Karigowda (CKG Constructions Private Limited), Contractor, Mysore.
Name of the Work	De-setting and Re-setting of Drain and Re-Asphalting of roads to Chikkasandra area in Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.
Sample I / D	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	15.06.2022

Total Weight of Sample: 5270 gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	JOB MIX Gradation as per MORTH	Remarks
19	0	0	0	100	100	Gradation satisfies Semi Dense Bituminous concrete Grade-I specification as per MORTH
13.2	365	6.93	6.93	93.07	90-100	
9.5	410	7.78	14.71	85.29	70-90	
4.75	2239	42.49	57.19	42.81	35-51	
2.36	856	16.24	73.43	26.57	24-39	
1.18	529	10.04	83.47	16.53	15-30	
0.3	265	5.03	88.50	11.50	9-19	
0.075	245	4.65	93.15	6.85	3-8	

Total Weight of Sample: 5250 gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	JOB MIX Gradation as per MORTH	Remarks
19	0	0	0	100	100	Gradation satisfies Semi Dense Bituminous concrete Grade-I specification as per MORTH
13.2	415	7.90	7.90	92.10	90-100	
9.5	465	8.86	16.76	83.24	70-90	
4.75	2285	43.52	60.29	39.71	35-51	
2.36	636	12.11	72.40	27.60	24-39	
1.18	480	9.14	81.54	18.46	15-30	
0.3	389	7.41	88.95	11.05	9-19	
0.075	269	5.12	94.08	5.92	3-8	

Note:

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K. Sreekanth

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ಶಿಕ್ಷಕರು ಉಪನಿರ್ದೇಶಕರು
ಅಧಿಕಾರಿ, ಬೆಂಗಳೂರು
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Job No.: CACE/BBMP/CK/W.No.12/2022-23

Date: 15.06.2022

TEST REPORT

Client	:	Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
Agency	:	Sri. Chikkaboregowda Karigowda (CKG Constructions Private Limited), Contractor, Mysore.
Name of the work	:	De-setting and Re-setting of Drain and Re-Asphalting of roads to Chikkasandra area in Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.
IS Code	:	IS 15462:2004, IS 1203:1978(RA 2008), IS 1205:1978(RA 2009), IS 1209:1978(RA 2009)
Source of location	:	Hot mix Plant, Bangalore, CRMB-55
Date of testing	:	15.06.2022

The results of the tests conducted on the bitumen sample using for Bituminous Concrete

Sl. No	Description	Test Result	Requirement as per IS:15462:2004
1	Penetration at 25 °C, 1/10 mm	52	<60
2	Softening point, °C	60	Min. 55
3	Flash Point, °C	246	Min. 220

Note:

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- ⇒ Any Query regarding the report must be reported within 30 days from the date of testing.

Graced

AE-12

For CIVIL AIM CONSULTANTS & ENGINEERS

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ಶಿಕ್ಷಕರು ಉಪವಿಭಾಗ
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Job No.: CACE/BBMP/CK/W.No.12/2022-23

Date: 15.06.2022

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
Agency	Sri. Chikkaboregowda Karigowda (CKG Constructions Private Limited), Contractor, Mysore.
Name of Work	De-setting and Re-setting of Drain and Re-Asphalting of roads to Chikkasandra area in Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.
IS Code	IS 2386 (Part 1):1963(RA 2011)
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	15.06.2022

Sl no	Test	1	2	Requirements as per MORTH 4th edition table no 500.14
1	Flakiness Index	11.5	12.2	Combined Flakiness & Elongation index Max 30%
2	Elongation Index	13.8	14.6	
	Combined Flakiness & Elongation index	25.3	26.8	

Note:

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Sreeja

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ಬಿಜಿಎಂಸಿ, ಬೆಂಗಳೂರು

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30%

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Job No.: CACE/BBMP/CK/W.No.12/2022-23

Date : 17.06.2022

Specific Gravity And Water Absorption Test

Client	Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
Agency	Sri. Chikkaboregowda Karigowda (CKG Constructions Private Limited), Contractor, Mysore.
Name of the Work	De-setting and Re-setting of Drain and Re-Asphalting of roads to Chikkasandra area in Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.
Type of Mix	Semi Dense Bituminous Concrete
IS code	IS 2386 (Part 3):1963(RA 2011)
Source / Location	Hotmix Plant, Bangalore
Date of Testing	15.06.2022 to 17.06.2022

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	$W_1 g$	2021	2023	2025	
2	Weight of basket suspended in water	$W_2 g$	755	755	755	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s g$	1266	1268	1270	
4	Weight of saturated surface dry aggregate in air	$W_3 g$	2015	2017	2019	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_s) g$	749	749	749	
6	Weight of oven dried aggregate	$W_4 g$	2009	2010	2011	
7	Specific Gravity	$W_4 / (W_3 - W_s)$	2.682	2.684	2.685	2.684
8	Apparent Specific gravity	$W_4 / (W_4 - W_s)$	2.704	2.709	2.714	2.709
9	Water Absorption	$((W_3 - W_4) * 100) / W_4$	0.30%	0.35%	0.40%	0.35%

Comments:

→ Maximum allowable Aggregate Water absorption value for Semi Dense Bituminous Concrete is 2.0%

Note:

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Freezer

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ಶಿಕ್ಷಕರು ಉಪವಿಭಾಗೀಶ್ವರ
ಮಾಹಿತಿ, ಬೆಂಗಳೂರು

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Job No.: CACE/BBMP/CK/W.No.12/2022-23

Date: 24.06.2022

TEST REPORT ON STABILITY OF MIX

Client	: Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
Agency	: Sri. Chikkaboregowda Karigowda (CKG Constructions Private Limited), Contractor, Mysore.
Name of the Work	: De-setting and Re-setting of Drain and Re-Asphalting of roads to Chikkasandra area in Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.
Source of location	: Hot mix Plant, Bangalore
Type of Mix	: Semi Dense Bituminous Concrete
Date of Testing	: 24.06.2022

The results of the tests conducted on the Semi Dense bituminous concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.65	10.54	9 Kn (min)
2	Marshal flow, mm	2.88	3.18	2 - 4
3	Percent air voids in Mineral Aggregate	13.78	14.36	13 - 15
4	Voids in Compacted Mix	3.42	4.61	3 - 6
5	Percent Voids filled with Bitumen	68.15	69.54	65 - 75
6	Density, g/cc	2.27	2.26	--

Note:

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- ⇒ Any Query regarding the report must be reported within 30 days from the date of testing.

Green

KE-12

For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory
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Job No.: CACE/BBMP/CK/W.No.12/2022-23

Date: 24.06.2022

TEST REPORT ON STABILITY OF MIX

Client	:	Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
Agency	:	Sri. Chikkaboregowda Karigowda (CKG Constructions Private Limited), Contractor, Mysore.
Name of the Work	:	De-setting and Re-setting of Drain and Re-Asphalting of roads to Chikkasandra area in Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Semi Dense Bituminous Concrete
Date of Testing	:	24.06.2022

The results of the tests conducted on the Semi Dense bituminous concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.89	10.32	9 Kn (min)
2	Marshal flow, mm	2.63	3.54	2 - 4
3	Percent air voids in Mineral Aggregate	13.89	14.12	13 - 15
4	Voids in Compacted Mix	3.66	4.85	3 - 6
5	Percent Voids filled with Bitumen	69.13	70.48	65 - 75
6	Density, g/cc	2.26	2.26	--

Note:

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- ⇒ The results indicated above are based on the tests carried out on the samples collected at the site.
- ⇒ Any Query regarding the report must be reported within 30 days from the date of testing.

Sreenivas

AE-12

For CIVIL AIM CONSULTANTS & ENGINEERS

[Signature]
ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರ
ಶಿಕ್ಷಣ ಮತ್ತು ಉಪವಿಭಾಗ
ಜಿ.ಜಿ.ಎಂ.ಸಿ. ಬೆಂಗಳೂರು
Authorized Signatory



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Job No.: CACE/BBMP/CK/W.No.12/2022-23

Date: 25.06.2022

TEST REPORT ON STABILITY OF MIX

Client	:	Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
Agency	:	Sri. Chikkaboregowda Karigowda (CKG Constructions Private Limited), Contractor, Mysore.
Name of the Work	:	De-setting and Re-setting of Drain and Re-Asphalting of roads to Chikkasandra area in Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Semi Dense Bituminous Concrete
Date of Testing	:	25.06.2022

The results of the tests conducted on the Semi Dense bituminous concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	10.26	9.98	9 Kn (min)
2	Marshal flow, mm	2.13	3.52	2 - 4
3	Percent air voids in Mineral Aggregate	13.19	14.85	13 - 15
4	Voids in Compacted Mix	4.63	5.22	3 - 6
5	Percent Voids filled with Bitumen	70.84	71.16	65 - 75
6	Density, g/cc	2.27	2.26	--

Note:

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K. Sreejan

A.E.-12

For CIVIL AIM CONSULTANTS & ENGINEERS

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ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ
ಬಿಬಿಎಂಪಿ, ಬೆಂಗಳೂರು
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Job No.: CACE/BBMP/CK/W.No.12/2022-23

Date: 25.06.2022

TEST REPORT ON STABILITY OF MIX

Client	:	Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
Agency	:	Sri. Chikkaboregowda Karigowda (CKG Constructions Private Limited), Contractor, Mysore.
Name of the Work	:	De-setting and Re-setting of Drain and Re-Asphalting of roads to Chikkasandra area in Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Semi Dense Bituminous Concrete
Date of Testing	:	25.06.2022

The results of the tests conducted on the Semi Dense bituminous concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.98	10.84	9 Kn (min)
2	Marshal flow, mm	2.36	3.49	2 - 4
3	Percent air voids in Mineral Aggregate	13.21	14.58	13 - 15
4	Voids in Compacted Mix	3.63	4.55	3 - 6
5	Percent Voids filled with Bitumen	67.89	68.15	65 - 75
6	Density, g/cc	2.27	2.26	--

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K. Sreenivas

AE-12

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ಶಿಬ್ಬಹಳ್ಳಿ ಉಪವಿಭಾಗ
ಬಿಜಿಎಂಪಿ, ಬೆಂಗಳೂರು



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Job No.: CACE/BBMP/CK/W.No.12/2022-23

Date : 24.06.2022

BITUMEN CONTENT AND GRADATION DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

AASHTO T 164 & AASHTO T 30

CLIENT	Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
AGENCY	Sri. Chikkaboregowda Karigowda (CKG Constructions Private Limited), Contractor, Mysore.
NAME OF THE WORK	De-setting and Re-setting of Drain and Re-Asphalting of roads to Chikkasandra area in Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.
DATE OF TESTING	24.06.2022

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	474	474.5
3. Weight of Asphalt and Mineral matter Extracted,	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	26	25.50
7. Bitumen content in %	5.20	5.10
8. Average	5.15	

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GRADATION AFTER EXTRACTION

SIEVE SIZE	Trail 1				JOB MIX
mm	Weight Retained, gm	% Retained	% Cumulative Retained	% Passing	Gradation
19	0	0	0	100	100
13.2	16.9	3.57	3.57	96.43	90-100
9.5	38.5	8.12	11.69	88.31	70-90
4.75	236.7	49.94	61.62	38.38	35-51
2.36	46.8	9.87	71.50	28.50	24-39
1.18	35.6	7.51	79.01	20.99	15-30
0.3	42.4	8.95	87.95	12.05	9-19
0.075	31.2	6.58	94.54	5.46	3-8

SIEVE SIZE	Trail 2				JOB MIX
mm	Weight Retained, gm	% Retained	% Cumulative Retained	% Passing	Gradation
19	0	0	0	100	100
13.2	14.9	3.14	3.14	96.86	90-100
9.5	28.6	5.72	5.72	94.28	70-90
4.75	240.5	48.10	53.82	46.18	35-51
2.36	56.8	11.36	65.18	34.82	24-39
1.18	33.6	6.72	71.90	28.10	15-30
0.3	75.8	15.16	87.06	12.94	9-19
0.075	36.2	7.24	94.30	5.70	3-8

Note:

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FOR CIVIL AIM CONSULTANTS & ENGINEERS

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DR. K. S. R. K.

Authorised Signatory



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Job No.: CACE/BBMP/CK/W.No.12/2022-23

Date : 24.06.2022

BITUMEN CONTENT AND GRADATION DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

AASHTO T 164 & AASHTO T 30

CLIENT	Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
AGENCY	Sri. Chikkaboregowda Karigowda (CKG Constructions Private Limited), Contractor, Mysore.
NAME OF THE WORK	De-setting and Re-setting of Drain and Re-Asphalting of roads to Chikkasandra area in Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.
DATE OF TESTING	24.06.2022

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	474.5	474
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	25.5	26.00
7. Bitumen content in %	5.10	5.20
8. Average	5.15	

GRADATION AFTER EXTRACTION

SIEVE SIZE	Trail 1				JOB MIX
mm	Weight Retained, gm	% Retained	% Cumulative Retained	% Passing	Gradation
19	0	0	0	100	100
13.2	15.6	3.29	3.29	96.71	90-100
9.5	37.9	7.99	11.28	88.72	70-90
4.75	233.6	49.23	60.51	39.49	35-51
2.36	45.8	9.65	70.16	29.84	24-39
1.18	36.3	7.65	77.81	22.19	15-30
0.3	40.5	8.54	86.34	13.66	9-19
0.075	33.3	7.02	93.36	6.64	3-8

SIEVE SIZE	Trail 2				JOB MIX
mm	Weight Retained, gm	% Retained	% Cumulative Retained	% Passing	Gradation
19	0	0	0	100	100
13.2	14.2	3.00	3.00	97.00	90-100
9.5	28.9	5.78	5.78	94.22	70-90
4.75	246.5	49.30	55.08	44.92	35-51
2.36	55.3	11.06	66.14	33.86	24-39
1.18	36.8	7.36	73.50	26.50	15-30
0.3	72.4	14.48	87.98	12.02	9-19
0.075	35.9	7.18	95.16	4.84	3-8

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Job No.: CACE/BBMP/CK/W.No.12/2022-23

Date : 25.06.2022

BITUMEN CONTENT AND GRADATION DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

AASHTO T 164 & AASHTO T 30

CLIENT	Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
AGENCY	Sri. Chikkaboregowda Karigowda (CKG Constructions Private Limited), Contractor, Mysore.
NAME OF THE WORK	De-setting and Re-setting of Drain and Re-Asphalting of roads to Chikkasandra area in Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.
DATE OF TESTING	25.06.2022

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	475	474
3. Weight of Asphalt and Mineral matter Extracted,	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g	25	26.00
6. Weight of Bitumen Extracted, g. (corrected)	5.00	5.20
7. Bitumen content in %	5.10	
8. Average		

GRADATION AFTER EXTRACTION

Trail 1					JOB MIX
SIEVE SIZE	Weight Retained, gm	% Retained	% Cumulative Retained	% Passing	Gradation
mm					
19	0	0	0	100	100
13.2	15.2	3.20	3.20	96.80	90-100
9.5	33.9	7.14	10.34	89.66	70-90
4.75	246.5	51.89	62.23	37.77	35-51
2.36	45.8	9.64	71.87	28.13	24-39
1.18	33.6	7.07	78.95	21.05	15-30
0.3	40.9	8.61	87.56	12.44	9-19
0.075	39.2	8.25	95.81	4.19	3-8

Trail 2					JOB MIX
SIEVE SIZE	Weight Retained, gm	% Retained	% Cumulative Retained	% Passing	Gradation
mm					
19	0	0	0	100	100
13.2	16.2	3.42	3.42	96.58	90-100
9.5	25.9	5.18	5.18	94.82	70-90
4.75	246.5	49.30	54.48	45.52	35-51
2.36	55.2	11.04	65.52	34.48	24-39
1.18	38.9	7.78	73.30	26.70	15-30
0.3	76.2	15.24	88.54	11.46	9-19
0.075	39.2	7.84	96.38	3.62	3-8

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Job No.: CACE/BBMP/CK/W.No.12/2022-23

Date : 25.06.2022

BITUMEN CONTENT AND GRADATION DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX AASHTO T 164 & AASHTO T 30

CLIENT	Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
AGENCY	Sri. Chikkaboregowda Karigowda (CKG Constructions Private Limited), Contractor, Mysore.
NAME OF THE WORK	De-setting and Re-setting of Drain and Re-Asphalting of roads to Chikkasandra area in Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.
DATE OF TESTING	25.06.2022

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	475	474.5
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	25	25.50
7. Bitumen content in %	5.00	5.10
8. Average	5.05	

GRADATION AFTER EXTRACTION

SIEVE SIZE	Trail 1				JOB MIX
mm	Weight Retained, gm	% Retained	% Cumulative Retained	% Passing	Gradation
19	0	0	0	100	100
13.2	12.9	2.72	2.72	97.28	90-100
9.5	33.6	7.07	9.79	90.21	70-90
4.75	230.4	48.51	58.29	41.71	35-51
2.36	46.5	9.79	68.08	31.92	24-39
1.18	33.2	6.99	75.07	24.93	15-30
0.3	40.8	8.59	83.66	16.34	9-19
0.075	49.3	10.38	94.04	5.96	3-8

SIEVE SIZE	Trail 2				JOB MIX
mm	Weight Retained, gm	% Retained	% Cumulative Retained	% Passing	Gradation
19	0	0	0	100	100
13.2	13.5	2.85	2.85	97.15	90-100
9.5	26.5	5.30	5.30	94.70	70-90
4.75	246.8	49.36	54.66	45.34	35-51
2.36	55.9	11.18	65.84	34.16	24-39
1.18	36.3	7.26	73.10	26.90	15-30
0.3	72.5	14.50	87.60	12.40	9-19
0.075	39.3	7.86	95.46	4.54	3-8

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